Results of DG Survey of States in EPA Region 3

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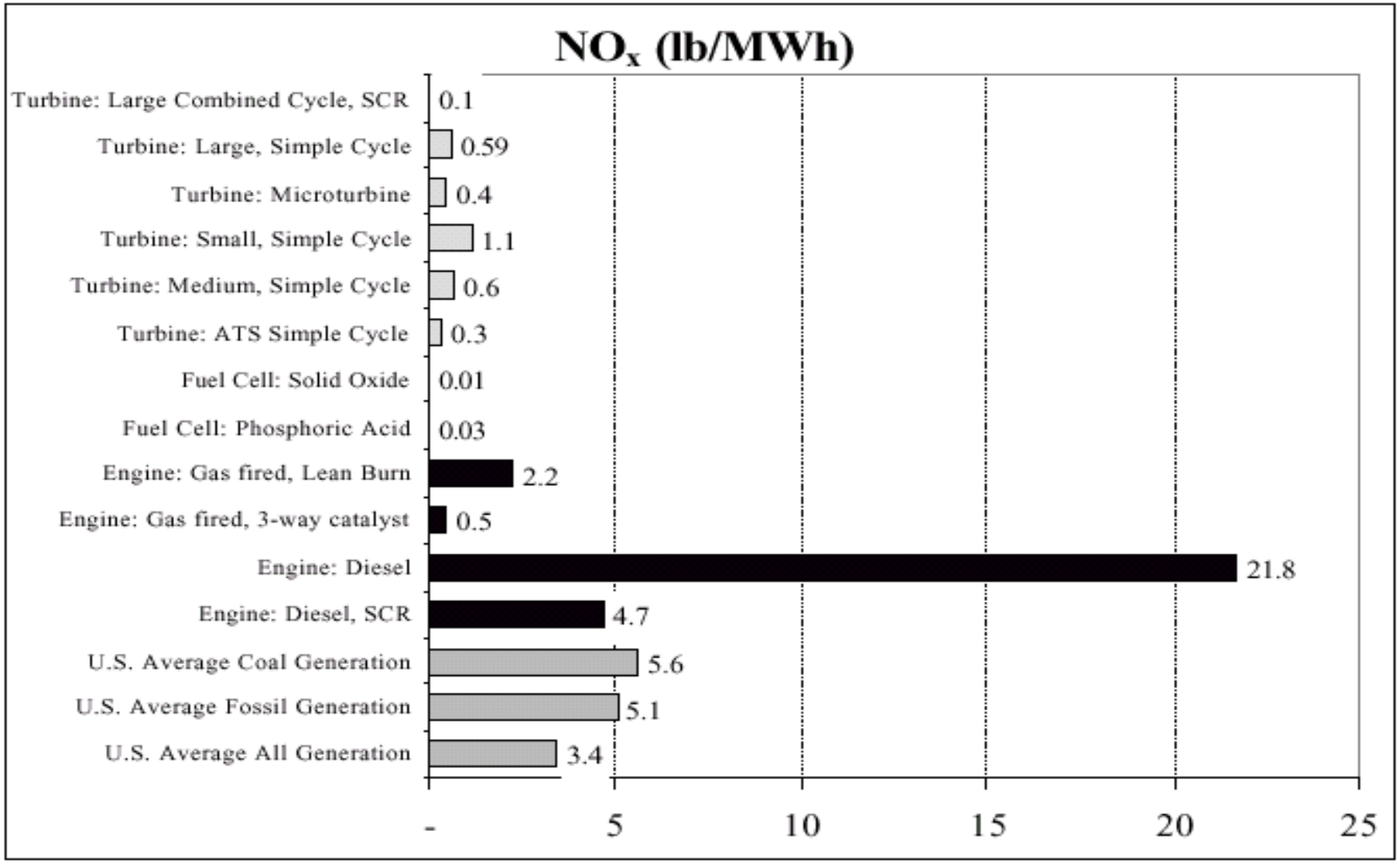
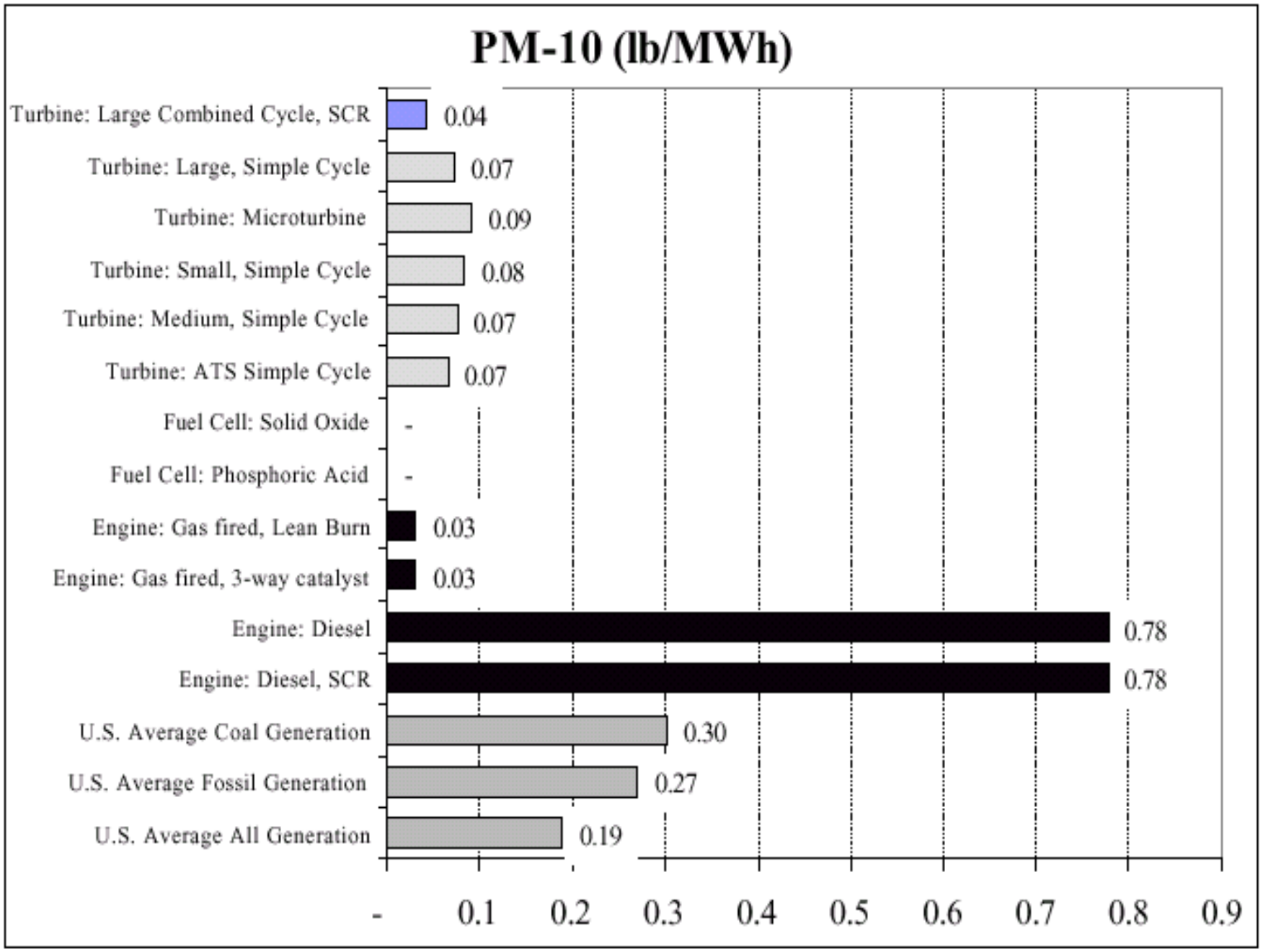
Reason for the Survey

- Diesel DG offers significant potential for pollution
- Owners of DG emergency units in Region 3 have expressed interest in using them more for peak load shaving situations to reap benefits of higher electricity prices
- Increasing energy consumption in the US especially during the summer (ozone) season may increase peak load shaving opportunities for DG



These are typical values for new units of the specified technologies. They do not apply to older, existing units. The values were calculated on the basis of assumptions about typical operating conditions; however, because actual operating conditions are rarely typical, the actual emissions performance of a unit may differ from these values.


PM-10 (lb/MWh)
Turbine: Large Combined Cycle, SCR
0.04
Turbine: Large, Simple Cycle
0.07
Turbine: Microturbine
0.09
Turbine: Small, Simple Cycle
0.08
Turbine: Medium, Simple Cycle
0.07
Turbine: ATS Simple Cycle
0.07
Fuel Cell: Solid Oxide
-
Fuel Cell: Phosphoric Acid
-
Engine: Gas fired, Lean Burn
0.03
Engine: Gas fired, 3-way catalyst
0.03
Engine: Diesel
0.78
Engine: Diesel, SCR
0.78
U.S. Average Coal Generation
0.30
U.S. Average Fossil Generation
0.27
U.S. Average All Generation
0.19
- 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9

Survey Letter sent to States in Oct. 2002

- Survey was not intended to be all inclusive but rather to obtain a synopsis as to how diesel DG in particular was being managed by states
- The survey contained only 6 questions
- A response was received from all parties queried
- Some follow up work was done via phone calls and review of state regulations

Summary of State Responses

- Question 1 - Do you regulate emergency and/or non-emergency diesel DG units under either state only permits, Title V permits or by some other permitting requirement. If so, what are the statutory/regulatory mechanisms that you employ? If not, do you register DG units?

Response to Question 1

- All states have permit and air emission requirements to regulate a portion of their DG universe
- Requirements for permitting DG vary greatly from state to state with little or no consistency
- The extent to which DG units subject to permitting were actually issued a permit varied from state to state (e.g., one state had only issued construction permits)
- Only one state (Va) indicated that they register certain units that are exempt from permitting

Question 2

- What method do you use to assess applicability? Do your regulations contain any de-minimis cut-off or exemption (e.g.; capacity, fuel type, BTU's hours of operation, etc)?

Response to Question 2

- All states indicated they have a de-minimis cut-off for regulating both emergency and non-emergency DG
- The cut-off levels differed among states, ranging from levels determined by size (brake horsepower or capacity) heat input (mmBTU/hr) and/or hours of operation
- Most states exempted from permitting emergency generators with < 500hrs/yr operation

Response to question 2 (continued)

- At least 3 states and Phila restricted emergency units from operating as peak load shaving units
- In most states there was no cut-off exemption for either emergency or non-emergency units if the PTE exceeded a certain threshold
- State cut off levels for permit exemptions appear to be more stringent for new sources (construction permits) as opposed to operating permits for existing sources

Question 3

- What limits are imposed on permitted units? What monitoring, recordkeeping or reporting requirements are imposed on these units?

Response to question 3

- In most states, permits issued to DG units contain only reporting, monitoring and record keeping requirements as opposed to imposing emission limitations
- Examples - logs of operating hours, fuel use, emission monitoring, change in operation reports
- Limitations imposed if the unit PTE exceeded a certain threshold (e.g.; was a major source)

Question 4

- Do you track these units? If so, how are they tracked? Can you assess the population (number, fuel type, location, etc) of diesel generators in your area?

Response to Question 4

- All states except one indicated that they had some kind of tracking system in place for permitted generators (Note-most emergency generators and smaller non-emergency generators are not permitted).
- Only Delaware indicated they had conducted an survey of DG units
- Most of our states do not appear to have a good inventory of their total DG universe
- States probably don't know how much of their DG universe that should be permitted actually is, or how much pollution is associated with these units.

Question 5

- Is the OTC rule for additional NOx control measures for DG units an acceptable means to regulate these units in your state? What provisions of the rule would you change before you would incorporate it into a state local regulation?

Response to question 5

- Although no state opposed the OTC DG model rule for NOx, or the OTC's DG Permit Initiative, only Va said they were planning to adopt it. Delaware is considering it as part of their Governor's energy task force initiative
- The OTC NOx model rule that would apply to non-emergency DG appears to be more stringent than what most our states have been imposing

Question 6

- What is your opinion and/or recommendation regarding mechanisms to improving the regulation of DG units in your state?

Response to Question 6

- Pa and Md have drafted regulations that will reduce emissions from DG units by reducing the size of units that would become subject to emission reduction requirements
- Use of a general permit approach to capture a larger universe of DG units
- Closer monitoring of emergency generators
- Imposition of specific reduction technologies, e.g.; SCR, engine tuning, etc on existing units

Is Diesel DG a Significant Source of Pollution in Region 3?

- NESCAUM study in Regions 1&2 - 26,936 emergency engines in 8 states provide 8712 MW capacity. With 500 hrs/yr operation this could produce 98,000 tpy NOx and 6,500 tpy PM10 (worse case scenario)
- Diesels are also a significant source of HAPs
- Diesel emissions linked to cancer and respiratory problems
- Most emergency DG in Region 3 are either exempted from permitting or have permits with no emission limitations

DG a Concern in Region 3? (continued)

- PJM - 55 DG owners representing 70 MW signed up to provide peak load shaving - only six owners (10MW) actually did that during the summer of 2002
- 2002 summer brought the highest demands that PJM has ever seen - no problem because of recent capacity increases to system
- Probably no near term need for DG units to provide peak power in Region 3, but.....
- According to DOE - total energy consumption in US expected to grow 1.5% annually between 2001-2020, so DG peak shaving may be needed in the future.

Is DG a Problem? (Continued)

- PJM emergency load response program requires DG units wishing to participate in peak load shaving to either have a state permit or show why they don't need one.
- If states are concerned with emissions from DG units providing peak load shaving, they need to insure DG units have permits with emission limitations

Recommendations

- It would be beneficial to have a comprehensive DG inventory done in Region 3
- Region 3 states should consider adopting a consistent approach to tracking and regulating DG units - states should consider adopting the OTC Model NOx Rule and DG Permit Initiative
- EPA and states need to consider incentives for encouraging clean DG alternatives and CHP